Carto

CLASSIFICATION AND CORRELATION

OF

THE SOILS OF

WARREN COUNTY
INDIANA

APRIL 1987

LOCATION

U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE
MIDWEST NATIONAL TECHNICAL CENTER
LINCOLN, NEBRASKA

UNITED STATES DEPARTMENT OF AGRICULTURE
Soil Conservation Service
Midwest National Technical Center
Lincoln, Nebraska 68508-3866

Classification and Correlation of the Soils of Warren County, Indiana

The field correlation and final field review for the soil survey of Warren County, Indiana, was held at Williamsport, Indiana, May 27-29, 1986. Participating in the final field review were James R. Barnes, soil survey party leader and William D. Hosteter, Indianapolis state office. The data reviewed consisted of the first draft of the soil survey manuscript, correlation samples, field sheets, map unit notes, laboratory data, and SCS-SOI-5 forms. Roger L. Haberman, soil correlator, MNTC, participated in the comprehensive field review on March 17-21, 1986.

The field correlation was reviewed by Roger L. Haberman in October 1986. The final correlation was base on the draft manuscript, field notes, copies of the field sheets, laboratory data, SCS-SS-6 file, selected correlation samples, and the field correlation.

Headnote for the Detailed Soil Survey Legend:
Map symbols consist of a combination of letters or of letters and numbers. The first capital letter is the initial one of the map unit name. The lowercase letter that follows separates map units having names that begin with the same letter, except that it does not separate sloping or eroded phases. The second capital letter indicates the class of slope. Symbols without a slope letter are for nearly level soils or miscellaneous areas. A final number of 2 indicates that the soil is moderately eroded and a number 3 indicates that the soil is severely eroded.

SOIL CORRELATION OF WARREN COUNTY, INDIANA

Field symbols	Field map unit name	Publication symbol	Approved map unit name
AfB2	Alford silt loam, 2 to 6 percent slopes, eroded	AfB2	Alford silt loam, 2 to 6 percent slopes, eroded
Am, Ar	Armiesburg Variant silty clay loam, frequently flooded	Am	Armiesburg Variant silty clay loam, frequently flooded
BbA, CtA, MxA	Barce silt loam, 0 to 2 percent slopes	BbA	Barce silt loam, 0 to 2 percent slopes
HaB2, BbB2, MxB2	Barce-Montmorenci silt loams, 2 to 6 percent slopes eroded	BdB2	Barce-Montmorenci silt loams, 2 to 6 percent slopes, eroded
Sm	Beaucoup silty clay loam, frequently flooded, undrained	Be	Beaucoup silty clay loam, frequently flooded, undrained
Ee, Ga, Mn	Beckville loam, occasionally flooded	Bk	Beckville loam, occasionally flooded
OnB2, OnA, OnB	Billett sandy loam, 1 to 4 percent slopes, eroded	BmB2	Billett sandy loam, 1 to 4 percent slopes, eroded
OnC2, FoC2, JaC2	Billett sandy loam, 6 to 12 percent slopes, eroded	BnC2	Billett sandy loam, 6 to 12 percent slopes, eroded
BpA	Blount silt loam, 0 to 2 percent slopes	BoA	Blount silt loam, 0 to 2 percent slopes
FsD2, FsC2, FsC3, FtC3, FtD3, OcC2, OsC, OsC2, RtC2, WmC2, WmC3, ChC2	Boyer-Mudlavia complex, 8 to 20 percent slopes, eroded	BpD2	Boyer-Mudlavia complex, 8 to 20 percent slopes, eroded
BrA	Brenton silt loam, 0 to 2 percent slopes	BrA	Brenton silt loam, 0 to 2 percent slopes

WARREN COUNTY, INDIANA --Continued

Field symbols	Field map unit name	Publication symbol	Approved map unit name
BsA, AkB2, ReA, ReB2	Brenton silt loam, till substratum, 0 to 2 percent slopes	BsA	Brenton silt loam, till substratum, 0 to 2 percent slopes
BwA, Cy, Dg, Lm, Lo	Brenton silt loam, moderately fine substratum, 0 to 2 percent slopes	BwA	Brenton silt loam, moderately fine substratum, 0 to 2 percent slopes
GlB2, MlB2, MyB2, RgB2, MlA	Xenia Variant silt loam, 1 to 6 percent slopes, eroded	CaB2	Cadiz silt loam, moderately wet, 1 to 6 percent slopes, eroded
CbA, CdA	Camden silt loam, 0 to 2 percent slopes	CbA	Camden silt loam, 0 to 2 percent slopes
CbB2, CeB2	Camden silt loam, 2 to 6 percent slopes, eroded	CbB2	Camden silt loam, 2 to 6 percent slopes, eroded
CdB2	Camden silt loam, till substratum, 2 to 6 percent slopes, eroded	CdB2	Camden silt loam, till substratum, 2 to 6 percent slopes, eroded
EuA	Carmi loam, 0 to 2 percent slopes	CfA	Carmi loam, 0 to 2 percent slopes
Ca	Comfrey loam, rarely flooded	Cg	Comfrey loam, stratified substratum, rarely flooded
Cs, Cu, Ot	Comfrey loam, frequently flooded	Cs	Comfrey loam, stratified substratum, frequently flooded, undrained
CtB2	Corwin silt loam, 2 to 6 percent slopes, eroded	CtB2	Corwin silt loam, 2 to 6 percent slopes, eroded
Cz, Rm, Ts, Wx	Cyclone silty clay loam	Cz	Cyclone silty clay loam

WARREN COUNTY, INDIANA --Continued

Field symbols	Field map unit name	Publication symbol	Approved map unit name
DW, Ao, Co, Du, Dv, Sd, Sz, Vs	Drummer silty clay loams	Dw	Drummer silty clay loams
Dx, Wr	Drummer silty clay loam, gravelly substratum	Dx	Drummer silty clay loam, gravelly substratum
Rr	Du Page loam, frequently flooded	Dy	Du Page loam, frequently flooded
FsB2	Eldean gravelly loam, 2 to 6 percent slopes, eroded	EdB2	Eldean gravelly loam, 2 to 6 percent slopes, eroded
FsA	Eldean silt loam, 0 to 2 percent slopes	EgA	Eldean silt loam, 0 to 2 percent slopes
EvA	Elston sandy loam, 0 to 3 percent slopes	EvA	Elston sandy loam, 0 to 3 percent slopes
GgA, CrA, GgB, MhA, MhB, OmA, OmB2, OeA, GgB2	Gilboa silt loam, 0 to 2 percent slopes	GgA	Gilboa silt loam, 0 to 2 percent slopes
FoB2, FoA	Glenhall silt loam, sandy substratum, 1 to 4 percent slopes, eroded	GhB2	Glenhall silt loam, 1 to 4 percent slopes, eroded
FpB2, FpA, TfA, TfB	Glenhall silt loam, till substratum, 1 to 4 percent slopes, eroded	GkB2	Glenhall silt loam, till substratum, 1 to 4 percent slopes, eroded
WnF	Gosport Variant shaly silt loam, 25 to 40 percent slopes	GoF	Gosport shaly silt loam, 25 to 40 percent slopes
HeG, HeF	Hennepin complex, 30 to 70 percent slopes	HeG	Hennepin loam, 30 to 70 percent slopes
WnB, WnC, WnC2, OeB2	High Gap silt loam, 2 to 9 percent slopes, stony	HfB	High Gap silt loam, 2 to 9 percent slopes, stony

WARREN COUNTY, INDIANA --Continued

Field symbols	Field map unit name	Publi-cation symbol	Approved map unit name
HhB2, HhA	High Gap Variant loam, 2 to 6 percent slopes, eroded	HhB2	High Gap Variant loam, 2 to 6 percent slopes, eroded
HhC2	High Gap Variant loam, 6 to 12 percent slopes, eroded	HhC2	High Gap Variant loam, 6 to 12 percent slopes, eroded
Hp, Pb	Houghton muck, drained	Hm	Houghton muck, drained
Ho	Houghton muck, undrained	Ho	Houghton muck, undrained
RsB2, IoB2	Iona silt loam, 1 to 4 percent slopes, eroded	IoB2	Iona silt loam, 1 to 4 percent slopes, eroded
IpA, MuB2	Ipava silt loam, 0 to 2 percent slopes	IpA	Ipava silt loam, 0 to 2 percent slopes
Ju	Jules silt loam, frequently flooded	Ju	Jules silt loam, frequently flooded
Cv	Brenton Variant silt loam	LcA	Lafayette silt loam, 0 to 2 percent slopes
La, De, Ro	La Hogue silt loam, 0 to 2 percent slopes	Ld	La Hogue silt loam, 0 to 2 percent slopes
Lk, Cn, Df, Dp	La Hogue silt loam, till substratum, 0 to 2 percent slopes	Lk	La Hogue silt loam, till substratum, 0 to 2 percent slopes
Lb, LbA, LbB, LhA, LhB	Landes-Landes Variant complex, frequently flooded	Lp	Landes-Chatterton complex, frequently flooded
GmB3, GlB3, MzB3	Markham silty clay loam, 2 to 6 percent slopes, severely eroded	MaB3	Markham silty clay loam, 2 to 6 percent slopes, severely eroded

WARREN COUNTY, INDIANA --Continued

Field symbols	Field map unit name	Publi-cation symbol	Approved map unit name
McB2, FrB2, PwB2, SyB2, VaB2	Markham-Symerton silt loams, 2 to 6 percent slopes, eroded	McB2	Markham-Symerton silt loams, 2 to 6 percent slopes, eroded
MdA, MeA	Martinsville loam, 0 to 2 percent slopes	MdA	Martinsville loam, 0 to 2 percent slopes
MdB2, MeB2	Martinsville loam, 2 to 6 percent slopes, eroded	MdB2	Martinsville loam, 2 to 6 percent slopes, eroded
MdC2, MdC3	Martinsville loam, 6 to 12 percent slopes, eroded	MdC2	Martinsville loam, 6 to 12 percent slopes, eroded
MoE2, KdD2, MdD2, MdE2, MoD2, SsD2, SsE2	Miami loam, 15 to 25 percent slopes, eroded	MoE2	Miami loam, 15 to 25 percent slopes, eroded
MpC3, KdC3, MoC3	Miami clay loam, 6 to 12 percent slopes, severely eroded	MpC3	Miami clay loam, 6 to 12 percent slopes, severely eroded
MpD3, MdD3, StD3	Miami clay loam, 12 to 18 percent slopes, severely eroded	MpD3	Miami clay loam, 12 to 18 percent slopes, severely eroded
Mk	Milford silty clay loam, pothole	Mr	Milford silty clay loam, pothole
MrA	Millbrook silt loam, till substratum, 0 to 2 percent slopes	MtA	Millbrook silt loam, till substratum, 0 to 2 percent slopes
HgC2, BbC2, CtC2, MxC2, SyC2	Montmorenci-Barce complex, 6 to 12 percent slopes, eroded	MuC2	Montmorenci-Barce complex, 6 to 12 percent slopes, eroded
MyE2, MyD2, MzD3, MzE3	Morley silt loam, moderately wet, 15 to 25 percent slopes, eroded	MvE2	Morley silt loam, moderately wet, 15 to 25 percent slopes eroded

WARREN COUNTY, INDIANA --Continued

Field symbols	Field map unit name	Publi-cation symbol	Approved map unit name
MzC3, GmC3	Morley silty clay loam, moderately wet, 6 to 12 percent slopes, severely eroded	MwC3	Morley silty clay loam, moderately wet, 6 to 12 percent slopes, severely eroded
MyC2, McC2	Morley-Cadiz silt loams, moderately wet, 6 to 12 percent slopes, eroded	MxC2	Morley-Cadiz silt loams, moderately wet, 6 to 12 percent slopes, eroded
EnA	Mudlavia gravelly silt loam, 0 to 2 percent slopes, stony	MyA	Mudlavia gravelly silt loam, 0 to 2 percent slopes, stony
EnB2	Mudlavia cobbly silt loam, 2 to 4 percent slopes, eroded, stony	MzB2	Mudlavia cobbly silt loam, 2 to 4 percent slopes, eroded, stony
MgB2	Ockley loam, sandy substratum, 2 to 6 percent slopes, eroded	ObB2	Ockley loam, sandy substratum, 2 to 6 percent slopes, eroded
OcA, OdA, TdA, ThA	Ockley silt loam, 0 to 2 percent slopes	OcA	Ockley silt loam, 0 to 2 percent slopes
OcB2, OcB	Ockley silt loam, 2 to 6 percent slopes, eroded	OcB2	Ockley silt loam, 2 to 6 percent slopes, eroded
OpB, OpA, OpB2	Ormas loamy sand, 1 to 4 percent slopes	OpB	Ormas loamy sand, 1 to 4 percent slopes
OsA, BuA	Oshtemo coarse sandy loam, 0 to 2 percent slopes	OsA	Oshtemo coarse sandy loam, 0 to 2 percent slopes
OsB, AgB, BuB2	Oshtemo coarse sandy loam, 2 to 6 percent slopes	OsB	Oshtemo coarse sandy loam, 2 to 6 percent slopes

WARREN COUNTY, INDIANA --Continued

Field symbols	Field map unit name	Publication symbol	Approved map unit name
Pm, Pg, Ph, Pn	Peotone silty clay loam, pothole	Pm	Peotone silty clay loam, pothole
Py, AnB	Piankeshaw Variant gravelly silt loam, rarely flooded	Po	Piankeshaw Variant gravelly silt loam, rarely flooded
Pt	Pits, gravel	Pp	Pits, gravel
PrA, TxA	Proctor silt loam, 0 to 2 percent slopes	PrA	Proctor silt loam, 0 to 2 percent slopes
PrB2	Proctor silt loam, 2 to 6 percent slopes, eroded	PrB2	Proctor silt loam, 2 to 6 percent slopes, eroded
PuA, DbA, WvA	Proctor silt loam, till substratum, 0 to 2 percent slopes	PuA	Proctor silt loam, till substratum, 0 to 2 percent slopes
PuB2, DbB2, WvB2	Proctor silt loam, till substratum, 2 to 6 percent slopes, eroded	PuB2	Proctor silt loam, till substratum, 2 to 6 percent slopes, eroded
Rb	Ragsdale silt loam	Rb	Ragsdale silt loam
KdA, MfA, MoA	Rainsville silt loam, 0 to 2 percent slopes	RdA	Rainsville silt loam, 0 to 2 percent slopes
KdB2, ClB2, MoB2, WuB2	Rainsville-Williamstown-Rush Variant silt loams, 2 to 6 percent slopes, eroded	RfB2	Rainsville-Williamstown-Rockfield silt loams, 2 to 6 percent slopes, eroded
RlA	Reesville silt loam, 0 to 2 percent slopes	RlA	Reesville silt loam, 0 to 2 percent slopes
RvA, RuA, WuA, XeA	Rush Variant silt loam, 0 to 2 percent slopes	RoA	Rockfield silt loam, 0 to 2 percent slopes

WARREN COUNTY, INDIANA --Continued

Field symbols	Field map unit name	Publication symbol	Approved map unit name
RvB2, MmB2, RuB2, XeB2	Rush Variant silt loam, 2 to 6 percent slopes, eroded	RoB2	Rockfield silt loam, 2 to 6 percent slopes, eroded
RpF	Rodman gravelly loam, 25 to 60 percent slopes	RpG	Rodman gravelly loam, 25 to 60 percent slopes
RtA, An	Rush silt loam, 0 to 2 percent slopes	RtA	Rush silt loam, 0 to 2 percent slopes
RtB2	Rush silt loam, 2 to 6 percent slopes, eroded	RtB2	Rush silt loam, 2 to 6 percent slopes, eroded
Sb	Sable silty clay loam	Sb	Sable silty clay loam
SeA, Ms	Shadeland Variant silt loam, 0 to 2 percent slopes	SeA	Shadeland Variant silt loam, 0 to 2 percent slopes
SlA, CwA, CxA, FdA, FdB2, LzA, LzB, Sk, Sn, SnA, WsA, WtA	Starks silt loam, till substratum, 0 to 2 percent slopes	SlA	Starks silt loam, till substratum, 0 to 2 percent slopes
Sr, Ge, Gf, Ta, St	Stonelick-Moundhaven complex, frequently flooded	Sr	Stonelick-Moundhaven complex, frequently flooded
StB3, McB3, SsB2, MpB3	Strawn clay loam, 2 to 6 percent slopes, severely eroded	StB3	Strawn clay loam, 2 to 6 percent slopes, severely eroded
StC3, SsC2	Strawn clay loam, 6 to 12 percent slopes, severely eroded	StC3	Strawn clay loam, 6 to 12 percent slopes, severely eroded
SyB, FrA, McA, PwA, SyA, VaA	Symerton-Varna silt loams, 1 to 3 percent slopes	SyB	Symerton-Varna silt loams, 1 to 3 percent slopes

WARREN COUNTY, INDIANA --Continued

Field symbols	Field map unit name	Publi-cation symbol	Approved map unit name
MfC2, MfC3	Tuscola loam, till substratum, 6 to 12 percent slopes eroded	TuC2	Tuscola loam, till substratum, 6 to 12 percent slopes, eroded
MfB2, OdB2	Tuscola silt loam, till substratum, 2 to 6 percent slopes, eroded	TwB2	Tuscola silt loam, till substratum, 2 to 6 percent slopes, eroded
Or	Udorthents, loamy	Ud	Udorthents, loamy
Ou	Udorthents, loamy, reclaimed	Ur	Udorthents, loamy, reclaimed
Sg, Sh	Wakeland Variant silt loam, occasionally flooded	Wc	Wakeland Variant silt loam, occasionally flooded
Wb	Wallkill Variant silty clay loam	We	Wallkill Variant silty clay loam
Wa	Warners Variant silty clay loam, undrained	Wg	Warners Variant silty clay, drained
Wf	Washtenaw silt loam	Wh	Washtenaw silt loam
TeA, TeB, TeB2, WkB2, WmA, WmB2, WdA	Waupecan silt loam, moderately wet, 0 to 2 percent slopes	WlA	Waupecan silt loam, moderately wet, 0 to 2 percent slopes
WpG, WpF, WnD, WnE, WpD	Weikert Variant fine sandy loam, 35 to 80 percent slopes, very bouldery	WpG	Weikert Variant fine sandy loam, 35 to 80 percent slopes, very bouldery
AvA, AkA, AkB, BhA, EsA, EsB, EsB2, FhA	Andres Variant-Elliott silt loams, 0 to 2 percent slopes	WrA	Williamsport-Elliott silt loams, 0 to 2 percent slopes

WARREN CCUNTY, INDIANA --Continued

Field symbols	Field map unit name	Publi-cation symbol	Approved map unit name
KdC2, MoC2, RgC2, RuC2, RuC3, RxC3	Williamstown-Rainsville silt loams, 6 to 12 percent slopes, eroded	WtC2	Williamstown-Rainsville silt loams, 6 to 12 percent slopes eroded

Series Established by This Correlation:

Chatterton (type location in Warren County, Indiana)
Lafayette (type location in Warren County, Indiana)
Mudlavia (type location in Warren County, Indiana)
Rainsville (type location in Warren County, Indiana)
Rockfield (type location in Warren County, Indiana)
Williamsport (type location in Warren County, Indiana)

Series Dropped or Made Inactive:

None

Certification Statement:
The state soil scientist certifies that:

1. Detailed soil maps within this county have been joined.

2. The soil mapping of this county was completed as of December 1985.

3. The general soil map and detailed maps have been joined with Benton County (correlated in 1985) on the north; Tippecanoe County (soil survey in progress) on the east, Vermillion County (correlated in 1976) on the south. A soil survey is in progress in Vermilion County, Illinois, on the west. Join statements are on record.

4. The location of the typical pedon descriptions in this county are in soil areas using that reference name.

5. The interpretaions for all series used in this soil survey have been coordinated.

Verification of Exact Cooperator Names:
The following will be on the front of the publication:

United States Department of Agriculture
Soil Conservation Service
In cooperation with
Purdue University
Agricultural Experiment Station
and
Indiana Department of Natural Resources
State Soil Conservation Board
and Division of Soil Conservation

The citation in the box on the inside of the front cover will read: "This survey was made cooperatively by the Soil Conservation Service, Purdue University Agricultural Experiment Station, and the Indiana Department of Natural Resources, State Soil Conservation Board, and Division of Soil Conservation. It is part of the technical assistance furnished to the Warren County Soil and Water Conservation District. Financial assistance was made available by the Warren County Board of County Commissioners."

Disposition of Original Atlas Field Sheets:
The original atlas field sheets for Warren County will be retained by the Indiana state office and will be used in the map compilation and finishing procedures. Copies have been made for fire protection purposes. The state office at Indianapolis will prepare the atlas sheets for publication by December 1986.

Prior Soil Survey Publications:
The first soil survey of Warren County was made in 1916 (ref. citation). This survey updates the first survey and provides additional information and larger maps that show the soil in greater detail.

Soil Survey of Warren County, Indiana; E. J. Grimes, Indiana Department of Geology; and E. H. Stevens, U. S. Department of Agriculture. 39 pp., illus., 1916.

Instructions for Map Finishing:
The conventional and special symbols used in this survey are listed on the attached SCS-37A. These are the only symbols that will be shown on the published maps. The maps will be finished using the "Guide for Soil Map Finishing", July 1976. Overlays and special instructions are prepared to show the separation of symbols on the field sheets.

Warren County Final Correlation

Instructions for Map Compilation and Map Finishing:

Special instructions for Map Finishing. The correlation legend will be followed except as noted on the following sheets.

Sheets 3, 10, 11, 12, 17, 19, 20, 24, 26, 41, 45, 48, 49, 53,	All the Dw in the areas <u>outlined</u> goes to Cz
43, 27, 46, 50, 18	All the Dw goes to Cz
4	All the Cz goes to Dw
11	All the Du in the area <u>outlined</u> goes to Cz
17	All the Sd in the area <u>outlined</u> goes to Cz
19	All the Sz in the area <u>outlined</u> goes to Cz
10, 11, 17,	All the Co, Du and Sz in the area <u>outlined</u> goes to Cz
18	All the Co, Du, and Dv goes to Cz
5, 12, 14, 19, 20	All the FdA, SlA and SnA in the area <u>outlined</u> goes to MtA
7	All the FdA, SlA and SnA <u>outside the blue area</u> goes to MtA
13	All the FdA, SlA and SnA on the sheet goes to MtA
5, 13	All the FpA on the sheet goes to PuA
5	All the GgA in the area <u>outlined</u> goes to BsA
5, 6, 13	All the FoB2 on the sheet goes to PuB2
6, 13	All the SyB2 on the sheet goes to BdB2
11, 17, 18, 24, 25, 28, 31, 32, 33, 38, 42, 54, 56	All the FsA on the sheet goes to OcA

11, 17, 18, 24, 25, 28, 31, 32, 33, 38, 42, 54, 56	All the FsB2 on the sheet goes to OcB2
52	All the FsB2 in the area outlined goes to OcB2
12, 13, 19, 20	All the GgA on the sheet goes to BsA
13, 19, 20	All the AkA, AkB, AkB2, GgB, La and Lk goes to BsA
11, 24, 25, 28 (inset), 32, 33, 38, 43, 46, 49, 52, 55 (inset), 55	All the HhB2 on the sheet goes to HfB
28, 34, 39, 54 (inset)	All the HhB2 in the area outlined goes to HfB
28, 33	All the WnB in the area outlined goes to HhB2
28, 39, 54 (inset)	All the HhC2 in the area outlined goes to HfB
52, 55, 55 (inset)	All the HhC2 on the sheet goes to HfB
32, 38, 52, 55 (inset), 55	All the HhA on the sheet goes to HfB
13	All the BbA, FoA and SyA goes to PuA
13, 20	All the FpB2 on the sheet goes to PuB2
21, 27, 28, 34, 39, 54 (inset)	All the WnF in the area outlined goes to WpG
38, 43, 46, 47,	All the WnF on the sheet goes to WpG
28, 34	All the WpG in the area outlined goes to GoF
33	All WpF in the area outlined in the lower left corner goes to WpG
33	All WpF on the rest of the sheet goes to GoF
25	All the R1A on the sheet goes to S1A

41 (section 11), 42, 46, 52	All the Ao goes to Cz
45, 48, 49	All the Ao in the area outlined goes to Cz
41, 45, 48, 49, 52	All the KdB2 on the sheet goes to CaB2
42	All the KdB2 in the area outlined goes to CaB2
46 (section 13)	All the RuB2 goes to CaB2
42	All the KdC2 in the area outlined goes to MxC2
41	All the KdC2 on the sheet goes to MxC2
46	All the CdB2 on the sheet goes to CbB2
46 (section 24)	All the MfA goes to MdA
6	All the AkA, AkB, AkB2, GgA, GgB, La and Lk on the sheet goes to BsA (except as noted)
6	All the BbA, FoA, FpA, and SyA on the sheet goes to PuA (except as noted)
6	All the FpB2 on the sheet goes to PuB2
5	All the BbA in the area outlined goes to PuA
6, 13	All the FoB on the sheet goes to PuB2
11	All the Dv in the area outlined goes in Cz
14	All the BbA on the sheet goes to PuA
28 (inset)	All the WpF on the inset goes to WpG
5	All the Cz in the area outlined goes to Dw

SCS-SOILS-37A
3-75

U.S DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

CONVENTIONAL AND SPECIAL SYMBOLS LEGEND

Soil Survey Area: WARREN COUNTY
State: INDIANA

Date: 11/86

CULTURAL FEATURES

BOUNDARIES

County or parish

Minor civil division

Field sheet matchline & neatline

AD HOC BOUNDARY (label)

Small airport, airfield, park, oilfield, cemetery, or flood pool

STATE COORDINATE TICK
1,890,000 FEET

LAND DIVISION CORNERS (sections and land grants)

ROADS

Divided (median shown if scale permits)

County, farm or ranch

ROAD EMBLEMS & DESIGNATIONS

Federal 287

State 52

RAILROAD

DAMS

Medium or small

PITS

Gravel pit

Mine or quarry

CULTURAL FEATURES (cont.)

MISCELLANEOUS CULTURAL FEATURES

Farmstead, house (omit in urban areas)

Church

School

WATER FEATURES

DRAINAGE

Perennial, double line

Perennial, single line

Intermittent

Drainage end

Canals or ditches

Drainage and/or irrigation

LAKES, PONDS AND RESERVOIRS

Perennial

MISCELLANEOUS WATER FEATURES

Marsh or swamp

Wet spot

SPECIAL SYMBOLS FOR SOIL SURVEY

SOIL DELINEATIONS AND SOIL SYMBOLS

ESCARPMENTS CeA FoB2

Bedrock (points down slope)

Other than bedrock (points down slope)

SHORT STEEP SLOPE

MISCELLANEOUS

Gravelly spot

Stony spot, very stony spot

RECOMMENDED AD HOC SOIL SYMBOLS

Very poorly drained soils in potholes

Very severely eroded spot

Overwash

PRIME FARMLAND

(Only the soils considered prime farmland are listed. Urban or built-up areas of the soils listed are not considered prime farmland. If a soil is prime farmland only under certain conditions, the conditions are specified in parentheses after the soil name)

Map symbol	Soil name
AfB2	Alford silt loam, 2 to 6 percent slopes, eroded
Am	Armiesburg Variant silty clay loam, frequently flooded (where protected from flooding or not frequently flooded during the growing season)
BbA	Barce silt loam, 0 to 2 percent slopes
BdB2	Barce-Montmorenci silt loams, 2 to 6 percent slopes, eroded
Bk	Beckville loam, occasionally flooded
BmB2	Billett sandy loam, 1 to 4 percent slopes, eroded
BoA	Blount silt loam, 0 to 2 percent slopes (where drained)
BrA	Brenton silt loam, 0 to 2 percent slopes (where drained)
BsA	Brenton silt loam, till substratum, 0 to 2 percent slopes (where drained)
BwA	Brenton silt loam, moderately fine substratum, 0 to 2 percent slopes (where drained)
CaB2	Cadiz silt loam, moderately wet, 1 to 6 percent slopes, eroded
CbA	Camden silt loam, 0 to 2 percent slopes
CbB2	Camden silt loam, 2 to 6 percent slopes, eroded
CdB2	Camden silt loam, till substratum, 2 to 6 percent slopes, eroded
CfA	Carmi loam, 0 to 2 percent slopes
Cg	Comfrey loam, stratified substratum, rarely flooded (where drained)
CtB2	Corwin silt loam, 2 to 6 percent slopes, eroded
Cz	Cyclone silty clay loam (where drained)
Dw	Drummer silty clay loams (where drained)
Dx	Drummer silty clay loam, gravelly substratum (where drained)
Dy	Du Page loam, frequently flooded (where protected from flooding or not frequently flooded during the growing season)
EdB2	Eldean gravelly loam, 2 to 6 percent slopes, eroded
EgA	Eldean silt loam, 0 to 2 percent slopes
EvA	Elston sandy loam, 0 to 3 percent slopes
GgA	Gilboa silt loam, 0 to 2 percent slopes (where drained)

PRIME FARMLAND--Continued

Map symbol	Soil name
GhB2	Glenhall silt loam, 1 to 4 percent slopes, eroded
GkB2	Glenhall silt loam, till substratum, 1 to 4 percent slopes, eroded
HhB2	High Gap Variant loam, 2 to 6 percent slopes, eroded
IoB2	Iona silt loam, 1 to 4 percent slopes, eroded
IpA	Ipava silt loam, 0 to 2 percent slopes (where drained)
Ju	Jules silt loam, frequently flooded (where protected from flooding or not frequently flooded during the growing season)
LcA	Lafayette silt loam, 0 to 2 percent slopes (where drained)
Ld	La Hogue silt loam, 0 to 2 percent slopes (where drained)
Lk	La Hogue silt loam, till substratum, 0 to 2 percent slopes (where drained)
Lp	Landes-Chatterton complex, frequently flooded (where protected from flooding or not frequently flooded during the growing season)
McB2	Markham-Symerton silt loams, 2 to 6 percent slopes, eroded
MdA	Martinsville loam, 0 to 2 percent slopes
MdB2	Martinsville loam, 2 to 6 percent slopes, eroded
MtA	Millbrook silt loam, till substratum, 0 to 2 percent slopes (where drained)
ObB2	Ockley loam, sandy substratum, 2 to 6 percent slopes, eroded
OcA	Ockley silt loam, 0 to 2 percent slopes
OcB2	Ockley silt loam, 2 to 6 percent slopes, eroded
OsA	Oshtemo coarse sandy loam, 0 to 2 percent slopes
OsB	Oshtemo coarse sandy loam, 2 to 6 percent slopes
PrA	Proctor silt loam, 0 to 2 percent slopes
PrB2	Proctor silt loam, 2 to 6 percent slopes, eroded
PuA	Proctor silt loam, till substratum, 0 to 2 percent slopes
PuB2	Proctor silt loam, till substratum, 2 to 6 percent slopes, eroded
Rb	Ragsdale silt loam (where drained)
RdA	Rainsville silt loam, 0 to 2 percent slopes
RfB2	Rainsville-Williamstown-Rockfield silt loams, 2 to 6 percent slopes, eroded
RlA	Reesville silt loam, 0 to 2 percent slopes (where drained)
RoA	Rockfield silt loam, 0 to 2 percent slopes
RoB2	Rockfield silt loam, 2 to 6 percent slopes, eroded
RtA	Rush silt loam, 0 to 2 percent slopes

PRIME FARMLAND--Continued

Map symbol	Soil name
Rt32	Rush silt loam, 2 to 6 percent slopes, eroded
Sb	Sable silty clay loam (where drained)
SeA	Shadeland Variant silt loam, 0 to 2 percent slopes (where drained)
SlA	Starks silt loam, till substratum, 0 to 2 percent slopes (where drained)
Sr	Stonelick-Moundhaven complex, frequently flooded (where protected from flooding or not frequently flooded during the growing season)
SyB	Symerton-Varna silt loams, 1 to 3 percent slopes
TwB2	Tuscola silt loam, till substratum, 2 to 6 percent slopes, eroded
Wc	Wakeland Variant silt loam, occasionally flooded (where drained)
Wh	Washtenaw silt loam (where drained)
WlA	Waupecan silt loam, moderately wet, 0 to 2 percent slopes
WrA	Williamsport-Elliott silt loams, 0 to 2 percent slopes (where drained)

Approved: April 29, 1987

Rodney F. Harner

RODNEY F. HARNER
Head, Soils Staff
Midwest NTC

CONVERSION LEGEND FOR WARREN COUNTY, INDIANA

Field symbol	Publication symbol	Field symbol	Publication symbol	Field symbol	Publication symbol	Field symbol	Publication symbol
AfB2	AfB2	CxA	SlA	Ga	Bk	MfB2	TwB2
Am	Am	Cy	BwA	Ge	Sr	MfC2	TuC2
AvA	WrA	Dw	Dw	Gf	Sr	MgB2	ObB2
AgB	OsB	Dx	Dx	GgB	GgA	Mk	Mr
AkA	WrA	DbA	PuA	GgB2	GgA	MoE2	MoE2
AkB	WrA	DbB2	PuB2	GlB3	MaB3	MpC3	MpC3
AkB2	BsA	De	Ld	GmC3	MwC3	MpD3	MpD3
An	RtA	Df	Lk	HeG	HeG	MrA	MtA
AnB	Po	Dg	BwA	HgB2	BdB2	MyC2	MxC2
Ao	Dw	Dp	Lk	HgC2	MuC2	MyE2	MvE2
Ar	Am	Du	Dw	HhB2	HhB2	MzC3	MwC3
BbA	BbA	Dv	Dw	Ho	Ho	McA	SyB
BpA	BoA	Ee	Bk	Hp	Hm	McB3	StB3
BrA	BrA	EnA	MyA	HeF	HeG	McC2	MxC2
BsA	BsA	EnB2	MzB2	HhA	HhB2	MdC3	MdC2
BwA	BwA	EuA	CfA	HhC2	HhC2	MdD2	MoE2
BbB2	BdB2	EvA	EvA	IpA	IpA	MgD3	MpD3
BbC2	MuC2	EsA	WrA	IoB2	IoB2	MdE2	MoE2
BhA	WrA	EsB	WrA	Ju	Ju	MeA	McA
BuA	OsA	EsB2	WrA	JaC2	BnC2	MeB2	MdB2
BuB2	OsB	FpB2	GkB2	KdA	RdA	MfA	RdA
Ca	Cg	FsA	EgA	KdB2	RfB2	MfC3	TuC2
CbA	CbA	FsB2	EdB2	KdC2	WtC2	MhA	GgA
CbB2	CbB2	FsD2	BpD2	KdC3	MpC3	MhB	GgA
CdB2	CdB2	FdA	SlA	KdD2	MoE2	MlA	CaB2
Cs	Cs	FdB2	SlA	La	Ld	MlB2	CaB2
CtB2	CtB2	FhA	WrA	Lb	Lp	MmB2	RoB2
Cv	LcA	FoA	GhB2	LbA	Lp	Mn	Bk
Cz	Cz	FoB2	GhB2	LbB	Lp	MoA	RdA
CdA	CbA	FoC2	BnC2	LhA	Lp	MoB2	RfB2
CeB2	CbB2	FpA	GkB2	LhB	Lp	MoC2	WtC2
ChC2	BpD2	FrA	SyB	Lk	Lk	MoC3	MpC3
ClB2	RfB2	FrB2	McB2	Lm	BwA	MoD2	MoE2
Cn	Lk	FsC2	BpD2	Lo	BwA	MpB3	StB3
Co	Dw	FsC3	BpD2	LzA	SlA	Ms	SeA
CrA	GgA	FtC3	BpD2	LzB	SlA	MuB2	IpA
CtA	BbA	FtD3	BpD2	McB2	McB2	MxA	BbA
CtC2	MuC2	GgA	GgA	MdA	MdA	MxB2	BgB2
Cu	Cs	GlB2	CaB2	MdB2	MdB2	MxC2	MuC2
CwA	SlA	GmB3	MaB3	MdC2	MdC2	MyB2	CaB2

WARREN COUNTY, INDIANA --Continued

Field symbol	Publication symbol	Field symbol	Publication symbol	Field symbol	Publication symbol	Field symbol	Publication symbol
MyD2	MvE2	PwB2	McB2	St	Sr	WuA	RoA
MzB3	MaB3	Rb	Rb	StD3	MpD3	WuB2	RfB2
MzD3	MvE2	RlA	RlA	SyA	SyB	WvA	PuA
MzE3	MvE2	RpF	RpG	SyB2	McB2	WvB2	PuB2
OcA	OcA	Rr	Dy	SyC2	MuC2	Wx	Cz
OcB2	OcB2	RtA	RtA	Sz	Dw	XeA	RoA
OnB2	BmB2	RtB2	RtB2	TeA	WlA	XeB2	RoB2
OnC2	BnC2	RvA	RoA	Ta	Sr		
OpB	OpB	RvB2	RoB2	TdA	OcA		
Or	Ud	ReA	BsA	TeB	WlA		
OsB	OsB	ReB2	BsA	TeB2	WlA		
Ou	Ur	RqB2	CaB2	TfA	GkB2		
OcB	OcB2	RqC2	WtC2	TfB	GkB2		
OcC2	BpD2	Rm	Cz	ThA	OcA		
OdA	OcA	Ro	Ld	Ts	Cz		
OdB2	TwB2	RsE2	IoB2	TxA	PrA		
OeA	GqA	RtC2	BpD2	VaA	Sy5		
OeB2	HfB	RuA	RoA	VaB2	McB2		
OmA	GqA	RuB2	RoB2	Vs	Dw		
OmB2	GqA	RuC2	WtC2	Wa	Wg		
OnA	EmB2	RuC3	WtC2	Wb	We		
OnB	BmB2	RxC3	WtC2	Wf	Wh		
OpA	OpB	Sb	Sb	WnB	HfB		
OpB2	OpB	SeA	SeA	WnF	GoF		
OsA	OsA	Sq	Wc	WpG	WpG		
OsC	BpD2	SlA	SlA	WdA	WlA		
OsC2	BpD2	Sm	Be	WkB2	WlA		
Ot	Cs	Sr	Sr	WmA	WlA		
Pm	Pm	StB3	StB3	WmB2	WlA		
PrA	PrA	StC3	StC3	WmC2	BpD2		
PrB2	PrB2	SyB	SyB	WmC3	BpD2		
Pt	Pp	Sd	Dw	WnC	HfB		
PuA	PuA	Sh	Wc	WnC2	HfB		
PuB2	PuB2	Sk	SlA	WnD	WpG		
Py	Po	Sn	SlA	WnE	WpG		
Pb	Hm	SnA	SlA	WpD	WpG		
Pq	Pm	SsB2	StB3	WpF	WpG		
Ph	Pm	SsC2	StC3	Wr	Dx		
Pn	Pm	SsD2	MoE2	WsA	SlA		
PwA	SyB	SsE2	MoE2	WtA	SlA		

CLASSIFICATION OF PEDONS SAMPLED FOR LABORATORY ANALYSIS

1. Laboratory Data From NSSL With SCS-8 Forms Completed

Sampled as:	Pedon Sample Number	Publication Symbol	Approved Name
Drummer	S84IN-171-026	Dw	Drummer, till substratum
Drummer	S84IN-171-029	Dw	Drummer, till substratum
Shadeland Variant	S84IN-171-020	SeA	1/Shadeland Variant Aeric Ochraqualf; fine, mixed, mesic
High Gap Variant	S85IN-171-001	HhB2	1/High Gap Variant Ultic Hapludalf; fine-loamy, mixed, mesic
Rush Variant	S85IN-171-002	RoA	1/ 2/Rockfield
Andres Variant	S85IN-171-003	WrA	1/ 2/Williamsport

2. Laboratory Data From Purdue University with SCS-8 Forms Completed

Montmorenci	S83IN-171-1	BdB2	Montmorenci
Beecher	S83In-171-2	WrA	Beecher taxadjunct Udollic Ochraqualf; fine, mixed, mesic; inclusion in mapping unit
LaHogue	S83IN-171-3	BsA	Brenton, till substratum
Markham	S83IN-171-4	McB2	1/Markham; less clay in the C horizon than recognized
Ashkum	S83IN-171-5	Dw	Drummer, till substratum
Rush	S84IN-171-1	RtA	1/Rush; 2Bt less acid than recognized, 3 value in 3Bt outside series range

1/ Representative pedon for the series in Warren County
2/ Type location for series

2. Laboratory Data From Purdue University (cont.)

Sampled as:	Pedon Sample Number	Publication Symbol	Approved Name
Elston	S84IN-171-2	EvA	1/Elston; taxadjunct; Mollic Hapludalf
Elston	S84IN-171-3	CfA	1/Carmi
Fox	S84IN-171-4	EgA	Eldean taxadjunct; Typic Hapludalf; clayey-skeletal; inclusion in mapping unit
Ipava	S84IN-171-5	IpA	1/Ipava
Jules	S84IN-171-6	Ju	1/Jules taxadjunct; Typic Udifluvent; fine-silty, mixed, (calcareous), mesic
Oshtemo	S84IN-171-7	OsB	1/Oshtemo; Coarser sand than recognized in the series
Stonelick	S84IN-171-8	Sr	1/Stonelick
Ragsdale	S84IN-171-9	Rb	1/Ragsdale taxadjunct; Typic Haplaquoll; fine-silty, mixed, mesic
Sable	S84IN-171-10	Sb	Sable
Reesville	S84IN-171-11	RlA	1/Reesville; Upper Bt more acid and BC more alkaline than recognized; chroma at 6 in C and value of 6 in Bt outside series

1/ Representative pedon for the series in Warren County

2. Laboratory Data From Purdue University (cont.)

Sampled as:	Pedon Sample Number	Publication Symbol	Approved Name
Iona	S84IN-171-12	IoB2	1/Iona taxadjunct; Aquic Hapudalf; fine-silty, mixed, mesic
Alford	S84IN-171-13	AfB2	1/Alford; More alkaline in 7-11 inch layer and lower solum and 2C than recognized
Ross	S84IN-171-15	Dy	1/DuPage
Gessie	S84IN-171-16	Sr	Stonelick
Armiesburg	S84IN-171-17	Am	1/Armiesburg Variant
Hennepin	S84IN-171-18	HeG	1/Hennepin
Weikert Variant	S84IN-171-21	WpG	Weikert Variant; Lithic Eutrochrept; loamy-skeletal, mixed, mesic; inclusion in mapping unit
Xenia Variant	S84IN-171-22	CaB2	Cadiz taxadjunct; Aquic Hapudalf; fine-silty, mixed, mesic; inclusion in map unit
Glynwood	S84IN171-23	CaB2	Cadiz taxadjunct; Aquic Hapludalf; fine-silty, mixed, mesic; inclusion in map unit

1/ Representative pedon for the series in Warren County

2. Laboratory Data From Purdue University (cont.)

Sampled as:	Pedon Sample Number	Publication Symbol	Approved Name
Blount	S84IN-71-24	BoA	1/Blount; Lower solum and 2C contain less clay than recognized; lower solum more alkaline than recognized
Miami	S84IN-171-25	HeG	Miami; Less clay in the argillic horizon than recognized; inclusion in map unit
Drummer	S84IN-171-27	Dw	Drummer
Drummer	S84IN-171-28	Dw	1/Drummer
Eldean Variant	S84IN-171-42	MzB2	1/2/Mudlavia
Eldean Variant	S84IN-171-43	MyA	Mudlavia taxadjunct; Typic Hapludalf; loamy-skeletal, mixed, mesic; inclusion in map unit
Kendallville Variant	S84IN-171-44	RfB2	1/2/Rainsville

1/ Representative pedon for the series in Warren County
2/ Type location for series

Notes to Accompany
the Classification and Correlation
of Warren County, Indiana
by
William D. Hosteter
and Roger L. Haberman

The till sheet known in Indiana as the Snider till and which is the till of the Normal ground moraine and the Bloomington recessional moraine has a clay content which ranges from about 24 to 30 percent. Consequently, many of the pedons in Warren County in those series which are commonly associated with till having more than 27 percent clay have slightly less clay than the series range in the lower B and the C horizon.

ALFORD SERIES
These soils are more alkaline in the lower part of the solum and 2C horizon than recognized. They also have free carbonates above a depth of 80 inches. The 7-11 inch layer is more alkaline than the series range. This is likely due to liming. The thickness of the Peorian silts is less than 60 inches. This soil is mapped within 2-3 miles of the Wabash River.

ARMIESBURG VARIANT
These soils are formed in silty alluvium. About 1800 acres were mapped in Warren County.

BLOUNT SERIES
The lower 2B and 2C horizon contains less clay than the series range. The lower 2B also is less acid than the series range.

CADIZ SERIES
Value of 5 and chroma of 6 in the Bt and 2Bt; value of 5 in the 2BC; and value of 6 in the 2C are outside the series range. There is less gravel in the till than recognized. The 2C horizon contains less clay than recognized.

CAMDEN SERIES
The Bt horizon is slightly thicker than recognized for the series.

CARMI SERIES
The Bt horizon above a depth of 20 inches contains more than 15 percent gravel which is outside the series range. The C horizon typically is more alkaline than recognized.

CHATTERTON SERIES
This series is established by this correlation. The soils formed in sandy alluvium. About 600 acres were mapped in Warren County. Soils mapped as Landes Variant in Montgomery County are within the range of this series. There were 1512 acres of Landes Variant mapped in Montgomery County.

COMFREY SERIES
The Cg unit has chroma of 2 in the A horizon and value of 6 in the C horizon which are outside the series range. The Cs unit has hue of 10YR in the C horizon, which is outside the series range.

CYCLONE SERIES
A small portion (less than 200 acres) of this unit is mapped in the "heavy" till area in Warren County. In these areas the lower part of the solum and the underlying till contain more clay than the series range.

DU PAGE SERIES
The lower part of the B horizon and also the C horizon is silt loam which is outside the series range.

ELDEAN SERIES
The series is assigned very rapid permeability in the underlying material in Warren County. The series only allows rapid permeability, however, the SIR shows greater than 6 inches/hour. The coarse fragments in this soil are not dominantly limestone.

ELSTON SERIES
These soils are taxadjuncts to the series because base saturation is too low for a Mollisol. The soils are Mollic Hapludalfs. A footnote should be added to the tables stating that this soil is a source of ~~soil~~ SAND and gravel at depths greater than 80 inches.

GLENHALL SERIES
The type location of this series is moved to Warren County. The concept is changed from the substratum being sand and gravel to stratified silty and loamy material with thin sandy strata.

GOSPORT SERIES
Soils called Gosport Variant in the field correlation are correlated as Gosport following review of base saturation on associated soils.

These soils have slightly more coarse fragments than recognized for the series.

HIGH GAP SERIES
The 2Bt is silty clay loam which is outside the series range. It contains more than 15 percent fine sand or coarser.

HIGH GAP VARIANT
These soils formed in outwash and residuum from shale. Involved is about 670 acres.

IONA SERIES
These soils are taxadjuncts to the series because mottles are within the upper 10 inches of the argillic horizon. They are Aquic Hapludalfs.

IPAVA SERIES
The solum is slightly thinner than the series range. Depth to free carbonates is also less.

JULES SERIES
These soils are taxadjuncts to the series because they contain more clay in the control section. They are fine-silty.

LAFAYETTE SERIES
This series is established by this correlation. The soils formed in silty material and the underlying loamy and gravelly outwash. About 930 acres were mapped in Warren County. About 800 acres of this soil was correlated as Brenton Variant in Montgomery County. This soil is also being mapped in Tippecanoe County.

MARKHAM SERIES
Permeability will be narrowed to moderately slow in the C horizon so that it is compatible with other soils formed in similar material. This soil contains less clay in the C horizon than the series range. Also 3 chroma in the A horizon of the severely eroded unit is outside the series range.

MONTMORENCI SERIES
These soils are taxadjuncts because they do not have chroma 2 mottles within the upper 10 inches of the argillic horizon. They are Mollic Hapludalfs.

MORLEY SERIES
The C horizon typically contains less clay than the series range. Value of 5 and chroma of 3 in the A horizon are outside the series range.

MUDLAVIA SERIES
This series is established by this correlation. The soils formed in gravelly loamy outwash. About 2,700 acres were mapped in Warren County.

OCKLEY SERIES
Value of 5 and chroma over 3 in the 3Bt are outside the series range.

ORMAS SERIES
The soils lack a Bt horizon and have a slightly thicker 2Bt than recognized.

OSHTEMO SERIES
The sand size fraction in the soils is coarse. Except for the A horizon, this is outside the series range.

PIANKESHAW VARIANT
These soils formed in gravelly and stony colluvium and are calcareous to the surface. Involved is 200 acres.

RAGSDALE SERIES
These soils are taxadjuncts to the series because they do not have sufficient clay increase for an argillic horizon. The soils are Typic Haplaquolls.

RAINSVILLE SERIES
This series is established by this correlation. The soils formed in a thin layer of silty material, loamy outwash and glacial till. About 11,000 acres were mapped in Warren County.

REESVILLE SERIES
The upper part of the Bt is more acid than recognized. The Bt horizon has a value of 6 which is outside the series range. The BC horizon is more alkaline than recognized and chroma of 6 in the C horizon is outside the series range.

ROCKFIELD SERIES
This series is established by this correlation. The soils formed in silty material, loamy outwash and till. About 11,000 acres were mapped in Warren County.

RUSH SERIES
The 2Bt and 3Bt horizons are less acid than recognized. Value of 3 in the 3Bt horizon is outside the series range.

SABLE SERIES
Lab data for the typical pedon shows 4.6 percent $CaCO_3$ in the 30-45 inch layer but no effervescence was noted in the field.

SHADELAND VARIANT
These soils formed in outwash and dominantly residuum from shale. Involved is abut 900 acres.

STRAWN SERIES
The lower part of the Bt horizon is loam which is outside the series range.

TUSCOLA SERIES
These soils are taxadjuncts to the series because gray mottles are not within the upper 10 inches of the argillic horizon. They are Typic Hapludalfs.

VARNA SERIES
The C horizon contains slightly less clay than the series range.

WAKELAND VARIANT
These soils formed in silty and loamy alluvium. They have free carbonates at a depth of 20 to 40 inches. Involved is about 1,120 acres.

WALLKILL VARIANT
These soils formed in sediments washed from adjacent slopes and deposited over organic deposits in potholes. Involved is about 320 acres.

WARNERS VARIANT
These soils formed in lacustrine sediments. Involved is about 225 acres.

WASHTENAW SERIES
These soils are taxadjuncts to the series because they contains less sand. They are fine-silty.

WAUPECAN SERIES
The solum is slightly thicker and depth to carbonates is slightly greater than recognized.

WEIKERT VARIANT
These soils formed in loamy residuum from sandstone. Involved is about 860 acres.

WILLIAMSPORT SERIES
This series is established by this correlation. These soils formed in silty material, loamy outwash, and glacial till. Involved is about 8,200 acres.

WILLIAMSTOWN SERIES
These soils are taxadjuncts to the series because they do not have gray mottles within the upper 10 inches of the argillic horizon. They are Typic Hapludalfs.

CLASSIFICATION OF THE SOILS

(An asterisk in the first column indicates a taxadjunct to the series. See notes for a description of those characteristics of this taxadjunct that are outside the range of the series)

Soil name	Family or higher taxonomic class
Alford	Fine-silty, mixed, mesic Typic Hapludalfs
Armiesburg Variant	Fine, mixed, mesic Fluventic Hapludolls
Barce	Fine-loamy, mixed, mesic Typic Argiudolls
Beaucoup	Fine-silty, mixed, mesic Fluvaquentic Haplaquolls
Beckville	Coarse-loamy, mixed, nonacid, mesic Aquic Udifluvents
Billett	Coarse-loamy, mixed, mesic Mollic Hapludalfs
Blount	Fine, illitic, mesic Aeric Ochraqualfs
Boyer	Coarse-loamy, mixed, mesic Typic Hapludalfs
Brenton	Fine-silty, mixed, mesic Aquic Argiudolls
Cadiz	Fine-silty, mixed, mesic Typic Hapludalfs
Camden	Fine-silty, mixed, mesic Typic Hapludalfs
Carmi	Coarse-loamy, mixed, mesic Typic Hapludolls
Chatterton	Sandy, mixed, mesic Fluventic Hapludolls
Comfrey	Fine-loamy, mixed, mesic Cumulic Haplaquolls
Corwin	Fine-loamy, mixed, mesic Typic Argiudolls
Cyclone	Fine-silty, mixed, mesic Typic Argiaquolls
Drummer	Fine-silty, mixed, mesic Typic Haplaquolls
Du Page	Fine-loamy, mixed, mesic Cumulic Hapludolls
Eldean	Fine, mixed, mesic Typic Hapludalfs
Elliott	Fine, illitic, mesic Aquic Argiudolls
*Elston	Coarse-loamy, mixed, mesic Typic Argiudolls
Gilboa	Fine-loamy, mixed, mesic Aquic Argiudolls
Glenhall	Fine-loamy, mixed, mesic Mollic Hapludalfs
Gosport	Fine, illitic, mesic Typic Dystrochrepts
Hennepin	Fine-loamy, mixed, mesic Typic Eutrochrepts
High Gap	Fine-loamy, mixed, mesic Typic Hapludalfs
High Gap Variant	Fine-loamy, mixed, mesic Ultic Hapludalfs
Houghton	Euic, mesic Typic Medisaprists
*Iona	Fine-silty, mixed, mesic Typic Hapludalfs
Ipava	Fine, montmorillonitic, mesic Aquic Argiudolls
*Jules	Coarse-silty, mixed (calcareous), mesic Typic Udifluvents
La Hogue	Fine-loamy, mixed, mesic Aquic Argiudolls

CLASSIFICATION OF THE SOILS--Continued

Soil name	Family or higher taxonomic class
Lafayette	Fine-silty, mixed, mesic Aquic Argiudolls
Landes	Coarse-loamy, mixed, mesic Fluventic Hapludolls
Markham	Fine, illitic, mesic Mollic Hapludalfs
Martinsville	Fine-loamy, mixed, mesic Typic Hapludalfs
Miami	Fine-loamy, mixed, mesic Typic Hapludalfs
Milford	Fine, mixed, mesic Typic Haplaquolls
Millbrook	Fine-silty, mixed, mesic Udollic Ochraqualfs
*Montmorenci	Fine-loamy, mixed, mesic Aquollic Hapludalfs
Morley	Fine, illitic, mesic Typic Hapludalfs
Moundhaven	Sandy, mixed, mesic Typic Udifluvents
Mudlavia	Clayey-skeletal, mixed, mesic Typic Hapludalfs
Ockley	Fine-loamy, mixed, mesic Typic Hapludalfs
Ormas	Loamy, mixed, mesic Arenic Hapludalfs
Oshtemo	Coarse-loamy, mixed, mesic Typic Hapludalfs
Peotone	Fine, montmorillonitic, mesic Cumulic Haplaquolls
Piankeshaw Variant	Loamy-skeletal, mixed (calcareous), mesic Typic Udifluvents
Proctor	Fine-silty, mixed, mesic Typic Argiudolls
*Ragsdale	Fine-silty, mixed, mesic Typic Argiaquolls
Rainsville	Fine-loamy, mixed, mesic Typic Hapludalfs
Reesville	Fine-silty, mixed, mesic Aeric Ochraqualfs
Rockfield	Fine-silty, mixed, mesic Typic Hapludalfs
Rodman	Sandy-skeletal, mixed, mesic Typic Hapludolls
Rush	Fine-silty, mixed, mesic Typic Hapludalfs
Sable	Fine-silty, mixed, mesic Typic Haplaquolls
Shadeland Variant	Fine, mixed, mesic Aeric Ochraqualfs
Starks	Fine-silty, mixed, mesic Aeric Ochraqualfs
Stonelick	Coarse-loamy, mixed (calcareous), mesic Typic Udifluvents
Strawn	Fine-loamy, mixed, mesic Typic Hapludalfs
Symerton	Fine-loamy, mixed, mesic Typic Argiudolls
*Tuscola	Fine-loamy, mixed, mesic Aquic Hapludalfs
Udorthents	Loamy, Udorthents
Varna	Fine, illitic, mesic Typic Argiudolls
Wakeland Variant	Coarse-silty, mixed, nonacid, mesic Aeric Fluvaquents
Wallkill Variant	Fine, mixed, mesic Cumulic Haplaquolls
Warners Variant	Fine-silty, mixed, mesic Fluvaquentic Haplaquolls

CLASSIFICATION OF THE SOILS--Continued

Soil name	Family or higher taxonomic class
*Washtenaw	Fine-loamy, mixed, nonacid, mesic Aeric Fluvaquents
Waupecan	Fine-silty, mixed, mesic Typic Argiudolls
Weikert Variant	Coarse-loamy, mixed, mesic Dystric Eutrochrepts
Williamsport	Fine, mixed, mesic Aquic Argiudolls
*Williamstown	Fine-loamy, mixed, mesic Aquic Hapludalfs